Where Online Students Chose to Study? A Case Study of Undergraduate and Graduate Online Students Preferences of Built Environments for Learning

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WHERE ONLINE STUDENTS CHOOSE TO STUDY?
A CASE STUDY OF UNDERGRADUATE AND GRADUATE ONLINE STUDENTS PREFERENCES OF BUILT ENVIRONMENTS FOR LEARNING

2015 SoTL Commons Conference
Savannah, Georgia
Presenter: Dr. Lilia Gomez-Lanier
University of Georgia
INTRODUCTION - LEARNING

• Traditionally, learning has occurred in the formal setting of the classroom.
• With the expansion of the internet and ever developing technologies online learning and informal learning have also become common occurrences on higher education campuses.

Image 1 - https://huffingtonpost.com 1/10/2014

INTRODUCTION - LEARNING

• It can be argued that learning occurs everywhere on higher education campuses, from dormitories, libraries, coffee shops to outdoor parks and from sidewalks.

INTRODUCTION - SPACE

- **Space** has a powerful impact in how individuals behave, communicate and interact with other individuals.
- **Space** can silently encourage individuals to gather, discuss and collaborate on ideas.
- **Space** can also encourage individuals to disengage and become spectators rather than participants in the learning process.

Image 4 – https://urbanpeek.com
Coventry University, UK
Ulrich (1991) theorized that human responses toward spaces are not guided by cognition, rather they are automatic, unconscious and adaptable processes rooted in human evolution.

Edward Wilson in 1984, suggests that there is an innate emotional connectivity between humans and nature, which leads to positive performances and wellness in humans (Griffin, 2004; Ulrich, 1991).
In terms of art work that depict landscape scenes, studies conducted by Ulrich (1991) have found that individuals do respond in a positive manner to scenes of nature when given a choice.

Image 5 - Newnham-on-Severn from Dean Hill by William Turner, English painter, 19th century
The greater exposure individuals have to daylight and indoor plants on a daily basis has been linked to increased productivity, higher test grades and overall wellness (Griffin, 2004; Heschong, 2002).
• Informal spaces with the aid of the internet provide a mix of academic and social activities that foster effective learning (Lomas and Oblinger, 2006).
LITERATURE REVIEW
INTERIOR DESIGN AND FURNISHINGS

• **Spaces** with **low ceilings** and **low levels of lighting** subconsciously symbolize a space of refuge.

• **Spaces** with **high ceilings** and **brighter levels of lighting** symbolize the prospects of greater resources the open savanna of the past offered individuals (Augustin, 2009).

Image 8 – https://vsba.com
Bryn Mawr College, PA
LITERATURE REVIEW
INTERIOR DESIGN AND FURNISHINGS

• Furniture for small informal spaces should foster privacy for individuals and small to medium sized groups.

• Open areas should have large tables that accommodate several individuals and their various electronic devices for groups of students to collaborate together (Lippincott, 2006).

• Generally, furniture should be mobile, able to be lowered or raised in height and ergonomic in design (Lippincott, 2006; Vischer, 2008).
LITERATURE REVIEW
SENSORY STIMULATION

• A study of learning spaces conducted by Van Note Chism (2006) found that students considered colors, carpeting and lighting as the most stimulating interior elements of learning spaces.

• Augustin (2009) suggests that warm colors, such as orange and red, attract people.

Image 9 – https://urbanpeek.com
Research conducted by Adler (1968) found that every person has one dominant sense, whereby a certain sense might dominate our cognitive responses, while a different sense might dominate our emotional responses.
In 2009 more than one in four higher education students took at least one course online (Allen and Seaman, 2010).
This quantitative research study examined the preferences that online graduate and undergraduate students have toward built environments and their various interior elements in terms of a learning environment.

- **RQ1** - Is there a significant difference between undergraduate and graduate online students in terms of the type of built environments student choose for learning?

- **RQ2** - Is there a significant difference between undergraduate and graduate online students in terms of the architectural elements of the built environments students choose for learning?

- **RQ3** - Is there a significant difference between undergraduate and graduate online students in terms of the furnishings and interior elements of the built environments students choose for learning?
METHODOLOGY

• The researcher for this quantitative research study conducted a descriptive quantitative analysis using data collected from an online pre-structured survey developed by the researcher specifically for this research study.
• The survey used a five point Likert-type scale of strongly agree, agree, neutral, disagree, or strongly disagree.
• The survey's thirty-two closed-ended questions focused on types of built environments used for learning, furnishings and the interior design characteristics of built environments for learning.
METHODOLOGY

• The research study took place on the campus of University of Georgia, a higher education institution in the southeast region of the United States.

• A purposive selection method of sampling was used to focus on a selected group of participants that met a fixed criterion that supported the study's purpose.

• Research participants met the criteria of a) enrolled at the university as a student pursuing an undergraduate or graduate degree at the University of Georgia and b) enrolled in an online course offered by the university.
METHODOLOGY

• 32 online students volunteered to participate in the research study.
• The research participants were composed of eight undergraduate and 24 graduate students.
• Of the participants, 28 were female and four were male participants.
RQ1 - Is there a significant difference between undergraduate and graduate online students in terms of the type of built environments student choose for learning?

<table>
<thead>
<tr>
<th>Research Question 1</th>
<th>Undergraduate Students Responses</th>
<th>Graduate Students Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. First built environment choice</td>
<td>Home 100%</td>
<td>Home 94%</td>
</tr>
<tr>
<td>2. Second built environment choice</td>
<td>Off campus coffee house 83% Off campus classroom 17%</td>
<td>Off campus coffee house 72% On campus classroom 11%</td>
</tr>
<tr>
<td>3. Third built environment choice</td>
<td>On campus library 67% On campus dining 16.7% On campus classroom 16.7%</td>
<td>On campus library 50% On campus student lounge 22%</td>
</tr>
<tr>
<td>4. Fourth built environment choice</td>
<td>On campus student lounge 67% Off campus coffee house 16.7% On campus outdoor space 16.7%</td>
<td>On campus student lounge 44% On campus library 33%</td>
</tr>
<tr>
<td>5. Fifth built environment choice</td>
<td>On campus dining 33% On campus outdoor space 33%</td>
<td>On campus dining 50% On campus student lounge 22%</td>
</tr>
<tr>
<td>6. Sixth built environment choice</td>
<td>On campus dining 33% 67% evenly distributed between the remaining choices</td>
<td>On class classroom 57% On campus dining 17%</td>
</tr>
<tr>
<td>7. Seventh built environment choice</td>
<td>On campus outdoor space 67%</td>
<td>On campus outdoor space 78% On campus classroom 17%</td>
</tr>
</tbody>
</table>
The analysis indicated that generally there is no significant difference between online undergraduate and graduate students.

Of the seven environments provided to undergraduate and graduate students, both groups of students share the top five selections and they are in order: a) home, b) on campus coffee house, c) on campus library, d) on campus student lounge and e) on campus dining.

The sixth choice is where both groups of students disagree. Undergraduates selected campus dining, while graduates selected on campus classroom.

Both undergraduate and graduate students shared the least desirable built environment for studying, which was on campus outdoor space.
**RQ1 - IS THERE A SIGNIFICANT DIFFERENCE BETWEEN UNDERGRADUATE AND GRADUATE ONLINE STUDENTS IN TERMS OF THE TYPE OF BUILT ENVIRONMENTS STUDENT CHOOSE FOR LEARNING?**

<table>
<thead>
<tr>
<th>Research Question 1 Responses</th>
<th>Undergraduate Students Responses</th>
<th>Graduate Students Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Selection of built environment based on convenience</td>
<td>13% strongly agree</td>
<td>8% strongly agree</td>
</tr>
<tr>
<td></td>
<td>87% agree</td>
<td>84% agree</td>
</tr>
<tr>
<td>9. Selection of built environment based on ability to study with others</td>
<td>50% agree</td>
<td>42% agree</td>
</tr>
<tr>
<td></td>
<td>38% disagree</td>
<td>21% disagree</td>
</tr>
<tr>
<td>10. Selection of built environment based on availability of food</td>
<td>12.5% strongly agree</td>
<td>58% agree</td>
</tr>
<tr>
<td></td>
<td>63% agree</td>
<td>21% disagree</td>
</tr>
<tr>
<td></td>
<td>12.5% disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.5% strongly disagree</td>
<td></td>
</tr>
<tr>
<td>11. Selection of built environment based on type of furnishings and interior space aesthetics</td>
<td>63% agree</td>
<td>58% agree</td>
</tr>
<tr>
<td></td>
<td>25% neutral</td>
<td>25% disagree</td>
</tr>
<tr>
<td>12. Selection of built environment based on the architecture of the building</td>
<td>25% strongly agree</td>
<td>21% agree</td>
</tr>
<tr>
<td></td>
<td>25% agree</td>
<td>67% disagree</td>
</tr>
</tbody>
</table>
RQ1 - IS THERE A SIGNIFICANT DIFFERENCE BETWEEN UNDERGRADUATE AND GRADUATE ONLINE STUDENTS IN TERMS OF THE TYPE OF BUILT ENVIRONMENTS STUDENT CHOOSE FOR LEARNING?

- Findings indicate that between online undergraduate and graduate students there is no significant difference in the selection of where to study as well as the reasons behind the selections.
- **Convenience:** The findings indicate convenience as a major reason for the selection of where to study, which relates back to both sets of students selecting home as their most desirable place for studying.
- **Food services:** Online graduate and undergraduate students indicated that they were more likely to select built environments with food sources.
  - Findings also indicated that available food sources had a greater positive influence on undergraduates’ selections of where to study.
- **Interior design and furnishings:** Furnishings and aesthetics appear to be more of an influence on graduates than undergraduates.
**RQ2** - Is there a significant difference between undergraduate and graduate online students in terms of the architectural elements of the built environments students choose for learning?

<table>
<thead>
<tr>
<th>Research Question 2 Responses</th>
<th>Undergraduate Students Responses</th>
<th>Graduate Students Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Prefer built environment that has a large number of windows and views to the outside.</td>
<td>38% strongly agree 50% agree</td>
<td>58% agree 17% neutral</td>
</tr>
<tr>
<td>14. Prefer built environment that has few windows and views to the outside.</td>
<td>63% disagree 37% strongly disagree</td>
<td>17% agree 63% disagree</td>
</tr>
<tr>
<td>15. Prefer open plan and minimum walls</td>
<td>63% agree 25% neutral</td>
<td>58% agree 25% neutral</td>
</tr>
<tr>
<td>16. Prefer small rooms</td>
<td>25% neutral 50% disagree</td>
<td>13% agree 13% neutral 67% disagree</td>
</tr>
<tr>
<td>17. Prefer low volume music played continuously</td>
<td>12.5% strongly agree 12.5% agree 12.5% neutral 50% disagree 12.5% strongly disagree</td>
<td>58% disagree 21% strongly disagree</td>
</tr>
<tr>
<td>18. I prefer to learn in a built environment that has sound masking</td>
<td>12.5% strongly agree 75% agree 12.5% disagree</td>
<td>12.5% strongly agree 71% agree 12.5% disagree</td>
</tr>
<tr>
<td>19. I prefer to learn in a built environment that has Wi-Fi</td>
<td>100% agree</td>
<td>92% agree</td>
</tr>
</tbody>
</table>
DATA ANALYSIS RQ2 - IS THERE A SIGNIFICANT DIFFERENCE BETWEEN UNDERGRADUATE AND GRADUATE ONLINE STUDENTS IN TERMS OF THE ARCHITECTURAL ELEMENTS OF THE BUILT ENVIRONMENTS STUDENTS CHOOSE FOR LEARNING?

• Findings indicate that there is no significant difference between online undergraduate and graduate students’ preferences.

• There are numerous commonalities between the two groups,
  • Both sets of students prefer to study in built environments that have large numbers of windows and views to the outside.
  • Both sets of students prefer to learn in open environments that have minimal walls and sound masking to control background noises.
  • Both sets of students consider the availability of Wi-Fi indispensable.
  • Based on the data analysis the availability of Wi-Fi is the single most important architectural element of a built environment.
**DATA ANALYSIS RQ3** - Is there a significant difference between undergraduate and graduate online students in terms of the furnishings and interior elements of the built environments students choose for learning?

<table>
<thead>
<tr>
<th>Research Question 3 Responses</th>
<th>Undergraduate Students</th>
<th>Graduate Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. I prefer to learn in a built environment with furniture that can easily be re-arranged instead of fixed furniture</td>
<td>75% strongly agree 12.5% agree 12.5 neutral</td>
<td>67% strongly agree 17% agree</td>
</tr>
<tr>
<td>21. I prefer to learn in a built environment that only offers lounge seating for groups and individuals</td>
<td>38% strongly agree 38% disagree</td>
<td>17% agree 58% disagree</td>
</tr>
<tr>
<td>22. I prefer to learn in a built environment that only offers table seating for individuals and groups of two or more people</td>
<td>25% strongly agree 63% disagree</td>
<td>21% agree 67% disagree</td>
</tr>
<tr>
<td>23. I prefer to learn in a built environment that offers both lounge and table seating for individuals and groups of two or more people</td>
<td>50% strongly agree 38% agree</td>
<td>38% strongly agree 50% agree</td>
</tr>
<tr>
<td>24. The type of furniture does not affect my selection of a built environment for learning</td>
<td>12.5% strongly agree 12.5% agree 63% disagree 12.5% strongly disagree</td>
<td>12.5% agree 75% disagree</td>
</tr>
</tbody>
</table>
**DATA ANALYSIS RQ3** - IS THERE A SIGNIFICANT DIFFERENCE BETWEEN UNDERGRADUATE AND GRADUATE ONLINE STUDENTS IN TERMS OF THE FURNISHINGS AND INTERIOR ELEMENTS OF THE BUILT ENVIRONMENTS STUDENTS CHOOSE FOR LEARNING?

<table>
<thead>
<tr>
<th>Research Question 3 Responses</th>
<th>Undergraduate Students</th>
<th>Graduate Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. I prefer to learn in a built environment that only has bright wall colors</td>
<td>50% neutral 50% disagree</td>
<td>33% neutral 67% disagree</td>
</tr>
<tr>
<td>26. I prefer to learn in a built environment only has neutral wall colors</td>
<td>63% agree 25% neutral</td>
<td>50% agree 38% neutral</td>
</tr>
<tr>
<td>27. I prefer to learn in a built environment has a variety of wall finishes</td>
<td>25% agree 50% neutral 25% disagree</td>
<td>46% neutral 46% disagree</td>
</tr>
<tr>
<td>28. I prefer to learn in a built environment that has carpet</td>
<td>50% agree 38% neutral</td>
<td>54% agree 33% neutral</td>
</tr>
<tr>
<td>29. I prefer to learn in a built environment that has hardwood flooring</td>
<td>38% neutral 38% disagree</td>
<td>33% agree 33% neutral</td>
</tr>
<tr>
<td>30. The floor materials of a built environment has no effect on my selection of a built environment for learning</td>
<td>38% strongly agree 38% agree</td>
<td>29% strongly agree 46% agree</td>
</tr>
<tr>
<td>31. I prefer to learn in a built environment that has various forms of art</td>
<td>50% neutral 38% disagree</td>
<td>46% neutral 36% disagree</td>
</tr>
<tr>
<td>32. Art has no effect on my selection of a built environment for learning</td>
<td>38% strongly agree 50% agree</td>
<td>33% strongly agree 42% agree</td>
</tr>
</tbody>
</table>
Findings indicated that there was no significant difference between undergraduate and graduate in terms of the furnishings and interior elements of the built environments students choose for learning.

- Both undergraduates and graduates indicated that movable furniture as well as lounge and table seating are preferred in built environments for studying.
- A greater percentage of graduate students indicated that their selection of where to learn was influenced by type of furnishings.
- Both undergraduates and graduate students indicated that the floor materials, use of art and wall colors of a built environment do not influence their selection of where to study.
CONCLUSION

• The research study did show that undergraduate and graduate online students do have built environment preferences that influences where studying will take place.
• These research findings serve as a means by which academia and design professionals can discuss and explore online learning and informal learning in terms of the built environment.
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• Allen, I. Elaine and Seaman, Jeff (2010). Learning on Demand - Online Education in the United States. Publisher: Babson Survey Research Group


REFERENCES


REFERENCES


REFERENCES

• Pelletier, Stephen G. (2010). Success for Adult Students. American Association of State Colleges and Universities, Public Purpose, Fall: 2-6


REFERENCES


CONCLUSION

• Thank you for your time
• Questions and answers
• Hand out exercise